

Title	ADDITIONAL REPORT ON CALANOID COPEPODS FROM THE IZU REGION -PART 3-B. CHIRUNDINA, UNDEUCHAETA, PSEUDEUCHAETA, VALDIVIELLA, AND CHIRIDIELLA-
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**ADDITIONAL REPORT ON CALANOID COPEPODS FROM
THE IZU REGION
PART 3-B. *CHIRUNDINA*, *UNDEUCHAETA*, *PSEUDEUCHAETA*,
VALDIVIELLA, AND *CHIRIDIELLA***

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With 3 Text-figures

This last half (B) of the present report Part 3 contains 8 species in 5 genera including *Pseudeuchaeta brevicauda* which has not previously been recorded from Japanese waters.

CHIRUNDINA GIESBRECHT, 1895

Chirundina streetsii GIESBRECHT, 1895

Chirundina streetsii GIESBRECHT, 1895, p. 249, pl. 1, figs. 5-10; A. SCOTT, 1909, p. 43, pl. 12, figs. 1-11; SARS, 1925, p. 77, pl. 22, figs. 8-13; TANAKA, 1957b, p. 190, fig. 53; GRICE, 1962, p. 196, pl. 11, figs. 1-4.

Occurrence: Sta. 83, 4♀; Sta. 93-1, 4♀; Sta. 93-2, 3♀; Sta. 94, 2♀; Sta. 95, 3♀; Sta. 96, 12♀, 2♂; Sta. 97-2, 9♀; Sta. 98, 8♀; Sta. 108, 35♀; Sta. 109, 6♀; Sta. 110, 11♀; Sta. 111-1, 10♀; Sta. 111-2, 13♀; Sta. 112, 12♀, 1♂; Sta. 114, 8♀, 1♂; Sta. 115-1, 12♀, 1♂; Sta. 115-2, 27♀; Sta. 116, 1♀; Sta. 117-2, 2♀; Sta. 118, 3♀; Sta. 119, 1♀; Sta. 120, 3♀; Sta. 121-1, 9♀; Sta. 121-2, 6♀; Sta. 122, 7♀.

Distribution and size variation:

Author	Locality	Depth (m)	Length (mm)	
			♀	♂
GIESBRECHT, 1895	Off California	0- 550	5.3	-
ESTERLY, 1906	Off San Diego	0- 730	5.0	4.3
A. SCOTT, 1909	Malay Archipelago	0-2000	4.80-5.30	3.80
WITH, 1915	North Atlantic	0- 600	5.22	3.80
SARS, 1925	Atlantic	0-3000	5.10	4.20
FARRAN, 1926	Bay of Biscay	46- 915	5.20	5.20

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FARRAN, 1929	Off New Zealand	0	4.15	—
TANAKA, 1957b	Izu region	0–1000	5.01	4.81
GRICE, 1962	Central Pacific	0–280	4.94	—
VERVOORT, 1963	Gulf of Guinea	100–600	4.65–5.55	4.05–4.80
DE PAIVA, 1963	Off Cape Verde Is.	—	4.90–5.14	—
TANAKA, 1969	South China Sea and off Bahamas	0–915	4.45–5.30	4.50
<i>Present record</i>	Izu region	0–360	4.70–5.50	4.30–4.70

UNDEUCHAETA GIESBRECHT, 1888

Undeuchaeta magna TANAKA, 1957

Undeuchaeta magna TANAKA, 1957b, p. 203, fig. 60; DE PAIVA, 1963, p. 39, fig. 17.

Occurrence: Sta. 111–2, 1♀; Sta. 112, 1♀; Sta. 113, 1♀.

Remarks: The present specimens, though slightly smaller than those previously recorded, agree quite well with the description given by TANAKA (1957b).

Distribution and size variation:

Author	Locality	Depth (m)	Length (mm)	
			♀	♂
TANAKA, 1957b	Suruga Bay	0–1000	6.07	—
DE PAIVA, 1963	Off Cape Verde Is.	—	6.29	—
<i>Present record</i>	Izu region	0–520	5.50–5.90	—

Undeuchaeta major GIESBRECHT, 1888

Undeuchaeta major GIESBRECHT, 1888, p. 336; GIESBRECHT, 1892, p. 227, pl. 37, figs. 56, 57, 59; SARS, 1925, p. 81, pl. 23, figs. 7–12; TANAKA, 1957b, p. 202, fig. 59.

Occurrence: Sta. 83, 12♀; Sta. 93–1, 2♀; 1♂; Sta. 93–2, 7♀; Sta. 95, 4♀, 2♂; Sta. 96, 7♀, 1♂; Sta. 97–2, 6♀, 1♂; Sta. 98, 6♀, 3♂; Sta. 108, 54♀, 10♂; Sta. 109, 8♀, 3♂; Sta. 110, 8♀, 1♂; Sta. 111–1, 34♀, 4♂; Sta. 111–2, 4♀, 2♂; Sta. 112, 13♀; Sta. 113, 2♀, 1♂; Sta. 114, 22♀; Sta. 115–1, 29♀, 7♂; Sta. 115–2, 13♀, 2♂; Sta. 116, 3♀; Sta. 117–1, 14♀, 1♂; Sta. 117–2, 11♀, 1♂; Sta. 118, 13♀, 1♂; Sta. 119, 5♀, 1♂; Sta. 120, 15♀; Sta. 121–1, 21♀, 4♂; Sta. 121–2, 14♀, 2♂; Sta. 122, 8♀.

Distribution and size variation:

Author	Locality	Depth (m)	Length (mm)	
			♀	♂
ESTERLY, 1905	Off San Diego	—	4.5–5.5	6.0–6.5
FARRAN, 1908	Irish Atlantic Slope	640–1830	5.28	—

A. SCOTT, 1909	Malay Archipelago	0-2000	4.80-6.40	-
WITH, 1915	Atlantic	0- 400	4.92	4.29
SARS, 1925	Atlantic	0-1000	5.10	-
FARRAN, 1926	Bay of Biscay	0- 970	4.80	6.26-4.74
FARRAN, 1929	Off New Zealand	0	-	-
WILSON, 1932	Off Cape Hatteras	0	4.5 -5.5	4.0 -4.9
SEWELL, 1947	Arabian Sea	0-1500	-	-
TANAKA, 1957b	Izu region	0-1000	4.43	4.12
VERVOORT, 1963	Gulf of Guinea	0- 100	4.15-5.30	3.90-4.25
DE PAIVA, 1963	Off Cape Verde Is.	-	4.77-5.20	4.10-4.31
Present record	Izu region	0- 360	4.20-5.20	4.00-4.50

Undeuchaeta plumosa (LUBBOCK, 1856)

Undina plumosa LUBBOCK, 1856, p. 24, pl. 9, figs. 3-5.

Undeuchaeta plumosa (LUBBOCK).-A. SCOTT, 1909, p. 62, pl. 22, figs. 1-8; SARS, 1925, p. 79, pl. 23, figs. 1-6; TANAKA, 1957b, p. 199, fig. 58; GRICE, 1962, p. 199, pl. 12, figs. 1-14.

Undeuchaeta minor GIESBRECHT, 1888, p. 336; GIESBRECHT, 1892, p. 228, pl. 14, figs. 31-34, pl. 37, figs. 55, 58.

Occurrence: Sta. 83, 3 ♀; Sta. 93-1, 3 ♀; Sta. 93-2, 1 ♀; Sta. 95, 3 ♀, 1 ♂; Sta. 96, 5 ♀, 1 ♂; Sta. 97-2, 8 ♀, 1 ♂; Sta. 98, 9 ♀; Sta. 108, 8 ♀, 1 ♂; Sta. 109, 5 ♀; Sta. 110, 7 ♀, 1 ♂; Sta. 111-1, 1 ♀; Sta. 111-2, 2 ♀; Sta. 112, 1 ♀, 1 ♂; Sta. 113, 1 ♀; Sta. 114, 1 ♀; Sta. 115-1, 3 ♀; Sta. 117-1, 2 ♀; Sta. 117-2, 4 ♀; Sta. 119, 1 ♀; Sta. 120, 3 ♀, 1 ♂; Sta. 121-1, 5 ♀; Sta. 121-2, 6 ♀; Sta. 122, 2 ♀.

Distribution and size variation:

Author	Locality	Depth (m)	Length (mm)	
			♀	♂
ESTERLY, 1905	Off San Diego	-	3.18	-
FARRAN, 1908	Irish Atlantic Slope	730-2013	4.20	-
A. SCOTT, 1909	Malay Archipelago	0- 200	3.50-4.50	3.20-3.60
SARS, 1925	Atlantic	0-1000	4.00	3.20
FARRAN, 1926	Bay of Biscay	0-1373	3.95-4.25	3.42-3.90
FARRAN, 1936	Great Barrier Reef	0- 600	3.25-3.60	-
MORI, 1937	Off Formosa	0- 100	3.2	3.1
VERVOORT, 1957	Malay Archipelago	0-3000	3.25-3.65	2.90
TANAKA, 1957b	Izu region	0-1000	3.61	3.45
GRICE, 1962	Central Pacific	0- 150	3.41-3.47	3.52
VERVOORT, 1963	Gulf of Guinea	0- 35	3.30-3.85	2.85-3.35
TANAKA, 1969	Off Bahamas	-	3.60-3.80	-
Present record	Izu region	0- 360	3.30-4.00	3.00-3.70

PSEUDEUCHAETA SARS, 1905

Pseudeuchaeta brevicauda SARS, 1905

(Fig. 12, a-o; Fig. 13, a-m)

Pseudeuchaeta brevicauda SARS, 1905, p. 18; SARS, 1925, p. 102, pl. 29, figs. 1-12; SEWELL, 1947, p. 106, fig. 22.

Autaneψsius minor WOLFENDEN, 1911, p. 352, text-fig. 80, pl. 38, figs. 9, 10.

Occurrence: Sta. 107, 1♂; Sta. 115-2, 2♀.

Descriptive notes: Female, 5.55 mm. The cephalothorax and abdomen are in the proportional lengths 77:23. The cephalothorax is 2.3 times as long as wide. The head is fused with the 1st thoracic segment. The 4th and 5th thoracic segments are partially fused. The lateral distal margin of the last thoracic segment are obtusely pointed. The rostrum is represented by a small knob.

The abdominal segments and furca are in the following proportional lengths:

segment	1-2	3	4	5	furca	
	44	18	14	8	16	=100

The genital segment is 1.5 times as long as wide; it is swollen laterally at the proximal one-third of the segment; the ventral surface is produced; the genital area is as shown by the figure (fig. 12 e). The furca is about as long as wide.

The 1st antenna extends to the 4th thoracic segment; the segments are in the following proportional lengths:

segment	1	2	3	4	5	6	7	8-9	10	11	12	13	14	15
	62	79	38	24	29	26	33	57	29	31	36	41	43	43
16	17	18	19	20	21	22	23	24	25					
	45	43	48	45	43	45	41	50	45	24	=1000			

Segments 3, 7, 9, 14, 16, 17, 18, 20, 22, 23, 24 and 25 each have a long seta.

In the 2nd antenna the endopod is 1.2 times as long as the exopod; the exopod is 7-segmented; the 1st exopod segment has 2 small prominences, each of which bears a small seta; the 2nd segment also carries proximal prominence; the endopod bears 6 setae on each of the outer and inner lobes. The endopod of the mandible is small; the 1st segment bears a single seta, and the 2nd segment bears 8 setae on the distal margin; the cutting blade is composed of 8 well-defined teeth. The 1st maxilla has the following number of setae on respective lobes: 8 setae on the outer lobe, 11 setae on the exopod, 6+4+4 setae on the 3rd to 1st segments of the endopod, 5 setae on the 2nd basal segment, 3 setae on the 3rd inner lobe, 4 setae on the 2nd inner lobe, and 13 setae on the 1st inner lobe; the endopod is large and strong; the

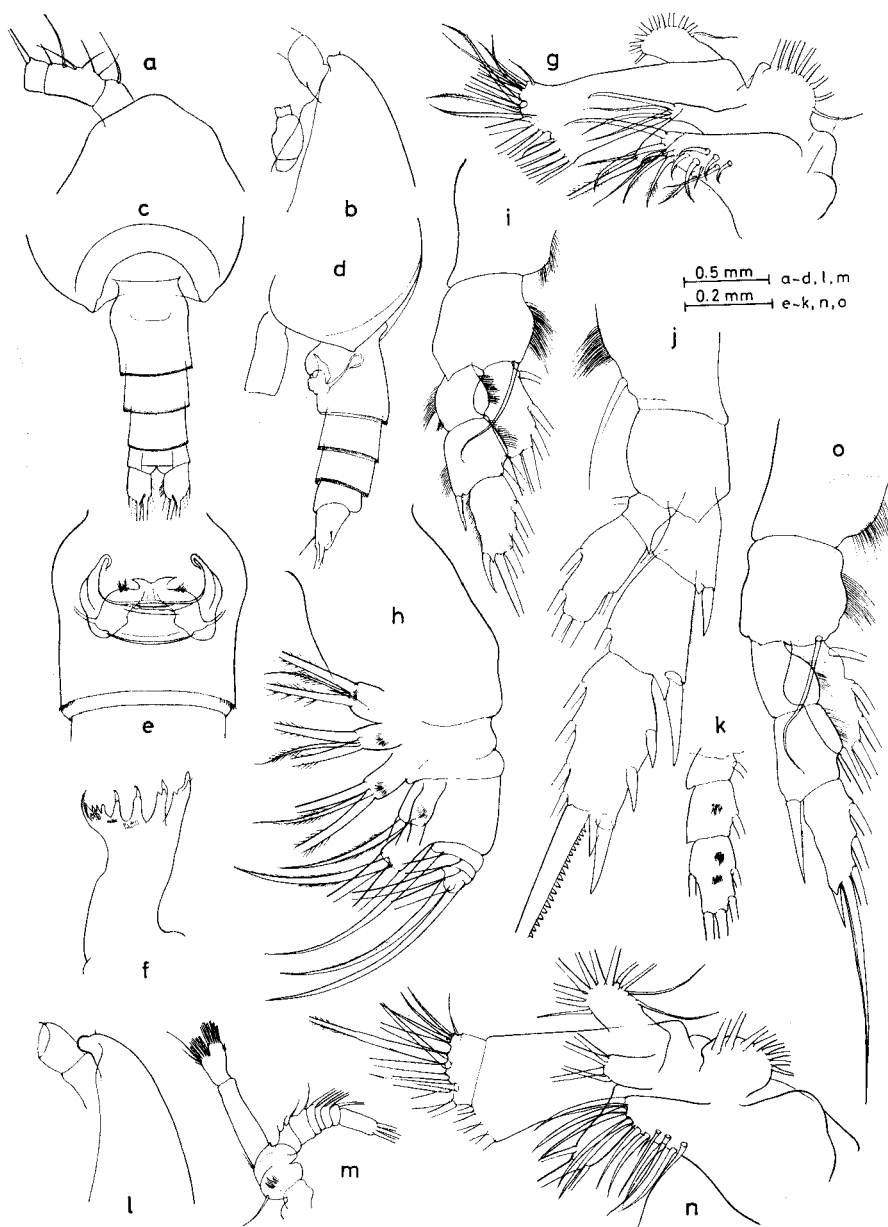


Fig. 12. *Pseudeuchaeta brevicauda* SARS, female (5.55 mm in length): a, head, dorsal view; b, the same, lateral view; c, last thoracic segment and abdomen, dorsal view; d, the same, lateral view; e, genital segment, ventral view; f, cutting blade of mandible; g, 1st maxilla; h, 2nd maxilla; i, 1st leg; j, 2nd leg; k, endopod of 4th leg. female (6.40 mm in length): l, head, lateral view; m, 2nd antenna; n, 1st maxilla; o, 1st leg.

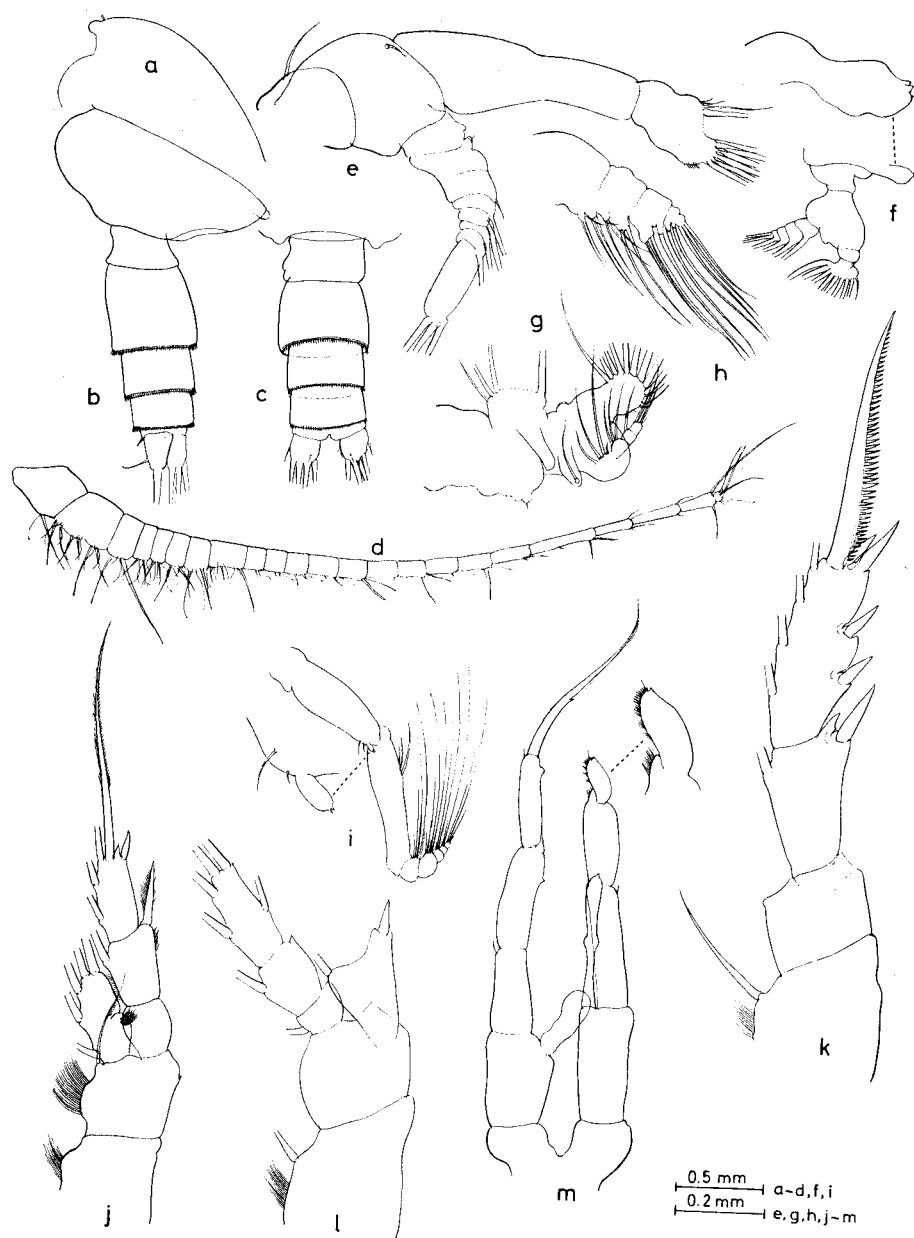


Fig. 13. *Pseudeuchaeta brevicauda* SARS, male: a, head, lateral view; b, last thoracic segment and abdomen, lateral view; c, abdomen, dorsal view; d, 1st antenna; e, 2nd antenna; f, mandible; g, 1st maxilla; h, 2nd maxilla; i, maxilliped; j, 1st leg; k, exopod of 2nd leg; l, endopod of 3rd leg; m, 5th pair of legs.

setae on the endopod and 2nd basal segment are strong. In the 2nd maxilla the 1st to 5th lobes each carry 3 setae; the endopod bears 6 setae. The maxilliped is large; the 2nd basal segment is longer than the 1st; the endopod is one-third the length of the 1st basal segment; the setae of the endopod are characteristic.

The 1st leg has a 3-segmented exopod and 1-segmented endopod; the 1st segment of the exopod lacks marginal spines. The 2nd leg has a 3-segmented exopod and 2-segmented endopod; the marginal spine on the 2nd segment of the exopod reaches the end of the first spine of the 3rd segment. The 3rd and 4th legs each have a 3-segmented exopod and endopod. The endopod of the 4th leg is furnished with groups of spinules on the posterior surface. The 5th pair of legs is absent. The terminal spine of the exopod of the 2nd and 3rd legs bears 35 and 38 teeth respectively.

Another specimen, measuring 6.40 mm, is much larger than the specimens hitherto been reported. The specimen shows several structural differences from the former specimen. The 1st antenna reaches the end of the 3rd thoracic segment. The rostrum is represented by a blunt knob; this knob is much larger than that of the former one. In the 1st maxilla the 3rd to 1st segments of the endopod has 4+4+4 setae instead of 6+4+4; the 2nd basal segment bears only 4 setae. In the 1st pair of legs the outer marginal spine on the 2nd segment of the exopod is large, extending nearly to the distal margin of the 3rd segment of the exopod; the exopod bears no hairs on the outer margin. The terminal spine of the exopod of the 2nd leg bears 41 teeth. The structure of the other parts agrees quite well with that given for the smaller specimen.

Male, 5.90 mm. The cephalothorax and abdomen are in the proportional lengths 79:21. The head is separated from the 1st thoracic segment; the 4th and 5th thoracic segment are fused. The frontal margin of the head is narrowly rounded in dorsal aspect, but it is obtusely rounded in lateral aspect. The lateral distal margin of the 5th thoracic segment is obtusely rounded, but slightly produced at the distal end. The rostrum is represented by a small knob.

The abdomen is 5-segmented; the segments and furca are in the following proportional lengths:

segment	1	2	3	4	5	furca	
	17	38	17	12	2	14	=100

The 2nd to 4th segments are fringed with spinules on the distal margin. The furca is about as long as wide, and bears 5 marginal setae.

The 1st antenna reaches the end of the 3rd thoracic segment; the segments of the left antenna are in the following proportional lengths:

the anterior distal margin; the 2nd basal segment has 3 setae on the anterior margin, and a single seta on the anterior distal margin; the endopod bears 3, 3, 2, 2, and 3 setae on the 1st to 5th segments respectively.

The 1st leg has a 3-segmented exopod and 1-segmented endopod. In the 2nd leg the exopod is 3-segmented, and the endopod is 2-segmented. The 3rd and 4th legs each have a 3-segmented exopod and endopod. The 5th pair of legs agree well with SEWELL'S (1929) description except that the distal segment of the right leg has a small process opposite to the projecting lamella, and that the 1st segment of the exopod of the left leg has a small triangular process near the inner distal margin.

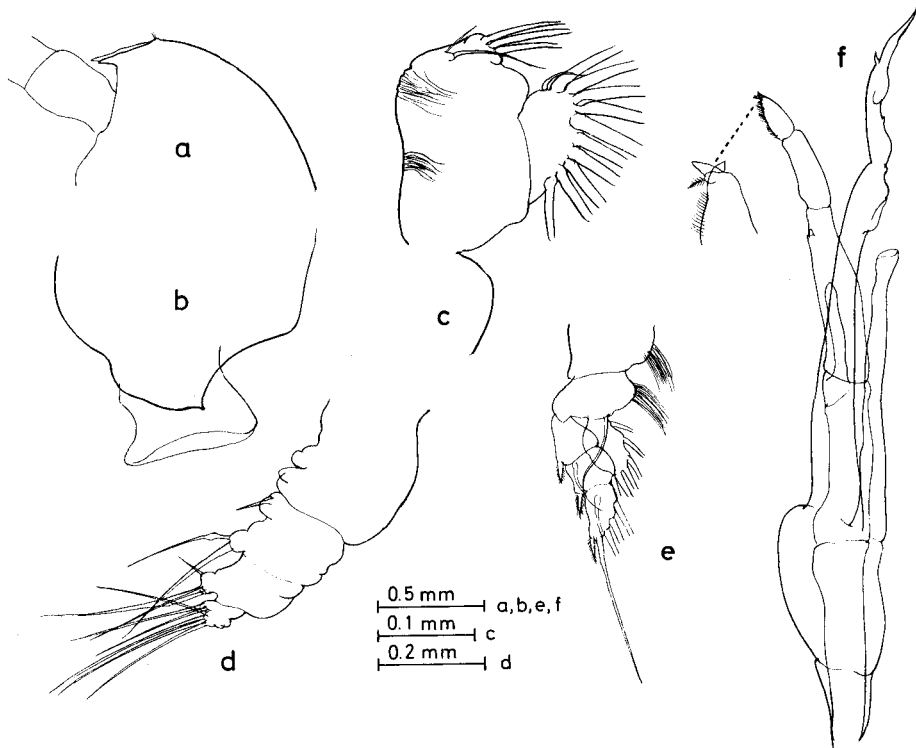


Fig. 14. *Valdiviella insignis* FARRAN, male: a, head, lateral view; b, last thoracic segment, lateral view; c, 1st maxilla; d, 2nd maxilla; e, 1st leg; f, 5th pair of legs.

Remarks: The present male specimen has been mis-identified and recorded as *Valdiviella oligarthra* in our previous paper (TANAKA and OMORI, 1967).

Distribution and size variation:

Author	Locality	Depth (m)	Length (mm)		
			♀	♂	
FARRAN, 1908	Irish Atlantic Slope	1280-2100	11.5	-12.0	-
WOLFENDEN, 1911	South Atlantic	0-1300	10.38	-	-

WITH, 1915	North Atlantic	0-1800	11.75	—
SARS, 1925	North Atlantic	0-1500	12.0	9.0
SEWELL, 1929	Bay of Bengal	0- 732	—	8.7
SEWELL, 1947	Arabian Sea	0-2091	11.5	—
VERVOORT, 1957	Antarctic waters	750-1000	9.50	—
VERVOORT, 1963	Gulf of Guinea	0- 600	8.50-11.0	8.02-8.56
TANAKA and OMORI, 1967	Northwestern Pacific	0-1620	11.3	—
<i>Present record</i>	Izu region	0-1560	—	8.70

Valdiviella oligarthra STEUER, 1904

Valdiviella oligarthra STEUER, 1904, p. 593, figs. 1-3; SEWELL, 1929, p. 140, fig. 54; TANAKA, 1957b, p. 205, fig. 61.

Occurrence: Sta. 107, 2 ♀; Sta. 111-2, 1 ♀.

Distribution and size variation:

Author	Locality	Depth (m)	Length (mm)	
			♀	♂
STEUER, 1904	Arabian Sea	—	9.0	—
WOLFENDEN, 1911	North Atlantic	0-1500	—	—
SEWELL, 1929	Bay of Bengal	0- 730	7.2	6.2
SEWELL, 1947	Arabian Sea	0-1500	10.0	—
TANAKA, 1957b	Sagami Bay	0-1000	9.57	—
TANAKA and OMORI, 1967	Northwestern Pacific	0-1430	9.5 -9.8	—
<i>Present record</i>	Izu region	0-1430	9.40-9.78	—

CHIRIDIELLA SARS, 1907

Chiridiella macrodactyla SARS, 1907

Chiridiella macrodactyla SARS, 1907, p. 8; FARRAN, 1908, p. 46, pl. 4, figs. 6-14; A. SCOTT, 1909, p. 79, pl. 36, figs. 9-21; SARS, 1925, p. 50, pl. 16, figs. 1-11; TANAKA, 1957a, p. 57, fig. 35.

Occurrence: Sta. 121-2, 1 ♀.

Distribution and size variation:

Author	Locality	Depth (m)	Length (mm)	
			♀	♂
FARRAN, 1908	Bay of Biscay	140-1100	2.56-2.80	—
A. SCOTT, 1909	Halmahera Sea	0-1000	2.73	—
SARS, 1925	North Atlantic	0-3000	2.70	—

WILSON, 1950	South China Sea	0- 915	-	-
TANAKA, 1957a	Izu region	0-1000	2.57	-
VERVOORT, 1963	Gulf of Guinea	0- 600	2.60-3.00	-
<i>Present record</i>	Izu region	0- 850	2.82	-

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